City of Lafayette Staff Report

For: Lafayette City Council

By: Christine Sinnette, Senior Planner

Date Written: May 2, 2008

Meeting Date: May 12, 2008

Subject: Conduct first reading and public hearing on Ordinance No. 564 revising Chapter 3-9, Gas Shut-Off Devices of the Lafayette Municipal Code (LMC)

Background

In October 2006, the Contra Costa County Board of Supervisors amended the current gas shut-off valve regulations and adopted Ordinance No. 2006-44 requiring the installation of gas shut-off devices in existing residential, commercial, and industrial buildings prior to the sale of those buildings or when additions or alterations valued at more then $15,000 are made. The City Council has been reviewing County Ordinance No. 2006-44 and Chapter 3-9, Gas Shut-Off Devices, LMC, since April 2007. During the public hearings, issues related to necessity for gas shut-off devices and their installation prior to the sale of an existing building have been raised. See Attachment 3 – Chronology of Chapter 3-9. At the direction of the City Council, these issues have been reviewed and considered by the Lafayette Emergency Preparedness Commission (EPC). The current version of Ordinance No. 564 incorporates all the recommendations of the EPC. See Attachment 1.

Staff Comment

The purpose of Ordinance No. 564 is three-fold. First, it revises Chapter 3-9, Gas Shut-Off Devices to remove adoption by reference provisions of the Contra Costa County ordinance code for regulations previously adopted by the City in 2000 and 2006.

Second, it incorporates the recommendations of the EPC by removing references to seismic gas shut-off devices, requires excess flow gas shut-off devices at each gas appliance which uses a vulnerable appliance fuel connector to connect it to a gas line, and removes the requirement that excess flow gas shut-off devices be installed when work requiring a building permit with a valuation of $5,000 involving fuel gas piping is issued and replaces it with a zero threshold.

Third, it incorporates the provision of County Ordinance No. 2006-44 reducing the threshold valuation of a building permit from $50,000 to $15,000 for additions or alterations when fuel gas piping is not involved in the work. Staff recommends that installation of gas shut-off devices prior to close of escrow as provided in County Ordinance No. 2006-44 not be included in Ordinance No. 564. As shown in material previously submitted by the Contra Costa Association of Realtors, there will only be a 60 percent implementation rate after 40 years if the close of escrow criteria is applied. It is staff's opinion that that this provision is unnecessary because Ordinance No. 564 will now require

that gas shut-off devices be installed whenever a building permit is issued for work involving fuel gas piping regardless of valuation. Attachment 2 contains a strikeout version of Chapter 3-9 as adopted by the City Council in 2000 and 2006 with the revisions recommended by the EPC.

Adoption of Ordinance No. 564 would impose stricter construction standards than required by the 2007 California Building Standards Code. Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change this Code and establish more restrictive standards if the local jurisdiction finds that the changes and modifications are reasonably necessary because of local climatic, geological or topographical conditions. Attachment 4 contains the findings of need for stricter construction standards due to local climatic, geological and topographical conditions.

Compliance with the California Environmental Quality Act

Adoption of Ordinance No. 564 and the provisions it contains are exempt from the California Environmental Quality Act (CEQA) pursuant to California Code of Regulations, §15061(b)(3) because this project is covered under the general rule that CEQA applies only to projects that have the potential for causing a significant effect on the environment. Adoption of Ordinance 564 and the administrative code provisions it contains have no potential for causing an effect on the environment.

Conformity with the General Plan, Specific Plans, and the Zoning Ordinance

The proposed adoption of Ordinance No. 564 and its provisions have no effect on the general plan, any applicable specific plans, or the zoning ordinance.

Public Notification and Comment

A notice and summary of the introduction and proposed adoption of Ordinance No. 564 was published in the *Contra Costa Times*, as required by law.

Fiscal Impact

Small, positive fiscal impact as the City would receive a portion of the $62.50 plumbing permit fee.

Recommendation

Conduct first reading and public hearing on Ordinance No. 564 and continue to June 9, 2008 for final reading and adoption.

Attachments

1. Ordinance No. 564
2. Strikeout Version of Chapter 3-9, Gas Shut-Off Devices, LMC
3. Chronology of Chapter 3-9, Gas Shut-Off Devices, LMC
4. Findings of Need for Stricter Construction Standards Due to Local Conditions

BEFORE THE CITY COUNCIL OF THE CITY OF LAFAYETTE

In the Matter of:

Ordinance No. 564

Adoption of revisions to Chapter 3-9, Gas Shut-Off Devices, of the Lafayette Municipal Code requiring excess flow gas shut-off devices in residential, commercial, and industrial buildings

The City Council of the City of Lafayette does ordain as follows:

Section 1. Summary.

This ordinance revises Chapter 3-9, Gas Shut-Off Devices, Lafayette Municipal Code (LMC) by removing adoption by reference provisions of the ordinance code of Contra Costa County, by renumbering the sections, and by requiring excess flow gas shut-off devices in existing residential, commercial, and industrial buildings.

Section 2. Revise title of Chapter 3-9 to read Excess Flow Gas Shut-Off Devices.

Section 3. Revise Section 3-901.

Revise Section 3-901 to read as follows:

3-901 Purpose.

The purpose of this chapter is to require installation of approved excess flow gas shut-off devices in residential, commercial, and industrial buildings under the conditions contained in this chapter.

Section 4. Revise Section 3-903.

Revise section 3-903 to read as follows:

3-903 Definitions.

For the purpose of this chapter, certain terms shall be defined as follows:

(a) "Downstream of Gas Utility Meter" shall refer to all customer owned gas piping.

(b) "Excess Flow Gas Shut-Off Device" shall mean those valves or devices that automatically close a valve to stop the flow of gas, upon detecting an excessively high flow rate that can occur when the downstream gas piping is damaged and leaking gas. This device shall not be the type that is actuated by certain levels of earthquake acceleration, shaking, or vibration.

The device shall automatically reopen and permit normal gas flow rates when the integrity of the downstream gas piping has been restored. The device shall be certified by the State Architect or the operational and functional design of the device shall meet or exceed the device certified by the Office of the State Architect. The determination of whether the operational and functional design of the device is at least equal to the device certified by the State Architect may be made by one of the following: the Independent Laboratory of the International Approval Services (IAS), Underwriter's Laboratory (UL), International Association of Plumbing and Mechanical Officials (IAPMO), or other recognized listing and testing agency.

(c) "Residential Building" shall mean any single family dwelling, duplex, multifamily dwelling, apartment building, condominium building, townhouse building, lodging house, congregate residence, hotel, or motel.

(d) "Vulnerable Appliance Fuel Connector" shall mean an assembly of listed semi-rigid or flexible tubing and fittings to carry fuel between a fuel piping outlet and fuel-burning appliance where the connector is susceptible to being broken or damaged by falling objects or by the appliance shifting during an earthquake. This would include, but not be limited to, fuel connectors for clothes dryers, kitchen ranges, and tank-type water heaters regardless of whether or not the appliance is braced, anchored, strapped or fastened in place.

Section 5. Add Section 3-905.

Add Section 3-905 to read as follows:

3-905 Scope.

An approved excess flow gas shut-off device (non-motion sensitive) shall be installed immediately upstream of any vulnerable appliance fuel connector within the following buildings and structures:

(a) In any new building construction (commercial, industrial or residential) containing fuel gas piping for which a building permit is first issued on or after the effective date of this chapter.

(b) In any existing residential building for which a building permit is first issued on or after the effective date of this chapter for work involving fuel gas piping. When a building permit is issued to an individual condominium or apartment unit, an approved excess flow gas shut-off device shall be installed at each new or existing gas appliance which uses a vulnerable appliance fuel connector to connect it to the gas line only in the unit for which the building permit is issued.

(c) In any existing residential building where the value of the alteration or addition is more than fifteen thousand dollars ($15,000) where fuel gas piping is not involved in the work for which a building permit is first issued on or after the effective date of this chapter. Alterations or additions to individual condominium or apartment units shall require an approved excess flow gas shut-off device to be installed at each gas

appliance which uses a vulnerable appliance fuel connector to connect it to a gas line in each individual unit that is being altered or added to.

(d) In any existing commercial or industrial building that has fuel gas piping supplying the building for which a building permit is first issued on or after the effective date of this chapter for work involving fuel gas piping. When a building permit is issued to an individual unit or tenant space, an approved excess flow gas shut-off device shall be installed at each new or existing gas appliance which uses a vulnerable appliance fuel connector to connect it to the gas line only in the unit or tenant space for which the building permit is issued.

(e) In any existing commercial or industrial building where the value of the alteration or addition is more than fifteen thousand dollars ($15,000) where fuel gas piping is not involved in the work for which a building permit is first issued on or after the effective date of this chapter. Alterations or additions to individual units or tenant spaces shall require an approved excess flow gas shut-off device to be installed at each gas appliance which uses a vulnerable appliance fuel connector to connect it to a gas line in each individual unit that is being altered or added to.

Section 6. Add Section 3-907.

Add Section 3-907 to read as follows:

3-907 Exceptions.

(a) Excess flow gas shut-off devices installed on a building before the effective date of this chapter are exempt from the requirements of this chapter provided they remain installed on the building or structure and are maintained for the life of the building or structure.

(b) This chapter does not apply to mechanical or process equipment used in manufacturing.

Section 7. Add section 3-909.

Add section 3-909 to read as follows:

3-909 General Requirements.

Excess flow gas shut-off devices installed either in compliance with this ordinance or voluntarily, with a permit issued on or after the effective date of this chapter, shall comply with all of the following requirements:

(a) Be installed by a contractor licensed in the appropriate classification by the State of California and in accordance with the manufacturer's instructions.

(b) Be certified by the State Architect or be listed by an approved listing and testing agency such as IAS, IAMPO, UL or the Office of the State Architect.

(c) Where excess flow gas shut-off devices are installed voluntarily or as required by this chapter, they shall be maintained for the life of the

building or structure or be replaced with a valve or device complying with the requirements of this chapter.

Section 8. Add Section 3-911.

Add Section 3-911 to read as follows:

3-911 List of Approved Valves and Devices.
The Building Inspection Department shall maintain a list of all excess flow gas shut-off devices (non-motion sensitive) which meet or exceed the requirements of devices certified by the Office of the State Architect for installation in the State of California and which comply with the standards and criteria set forth in Health and Safety Code section 19180 *et seq*,.

Section 9. Add section 3-913.

Add section 3-913 to read as follows:

3-913 Enforcing Agency.
The Contra Costa County Building Inspection Department shall administer and enforce the provisions of this chapter.

Section 10. Validity.

The City Council of the City of Lafayette declares that if any section, paragraph, sentence or word of this ordinance as adopted and amended herein is declared for any reason to be invalid, it is the intent of the City Council of the City of Lafayette that it would have passed all other portions or provisions of this ordinance independent of the elimination here from any portion or provision as may be declared invalid.

Section 11. Effective Date.

This ordinance becomes effective thirty (30) days after its adoption and within 15 days after adoption shall be published once with the names of councilmember voting for or against it in a newspaper published in Contra Costa County.

The foregoing ordinance was introduced at a regular meeting of the City Council of the City of Lafayette on May 12, 2008 and was adopted at a regular meeting of the City Council on June 9, 2008, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Mike Anderson, Mayor

ATTEST:

_____
Joanne Robbins, City Clerk

Chapter 3-9

EXCESS FLOW GAS SHUT-OFF DEVICES

Sections:

3-901 ~~Adoption of provisions of the Ordinance Code of Contra Costa County~~Purpose.

3-903 ~~County Ordinance Code Chapter 718-8 – General provisions~~Definitions.

3-905 Scope.

3-907 Exceptions.

3-909 General Requirements.

3-911 List of Approved Valves and Devices.

3-913 Enforcing Agency.

3-901 ~~Adoption of provisions of the Ordinance Code of Contra Costa County.~~Purpose.

~~Chapter 718-8 of the Ordinance Code of the County of Contra Costa, adopted March 21, 2000, entitled Gas Shut Off Devices, and amended on July 13, 2004 is adopted by reference under the authority of sections 50020 to 50022.9, inclusive, of the Government Code of the State of California.~~ The purpose of this chapter is to require installation of approved excess flow gas shut-off devices in residential, commercial, and industrial buildings under the conditions contained in this chapter. (Ord. 555 § 1, 2006; Ord. 515 § 1, 2000)

3-903 ~~County Ordinance Code Chapter 718-8 – General provisions~~Definitions.

~~Chapter 718-8 of the County Ordinance Code that was adopted by reference by section 1 of Ordinance 515 reads as follows:~~

~~718-8.202 Definitions.~~

For the purpose of this chapter, certain terms shall be defined as follows:

(a) "Downstream of Gas Utility Meter" shall refer to all customer owned gas piping.

~~(c)~~(b) "Excess Flow Gas Shut-Off Device" shall mean those valves or devices that automatically close a valve to stop the flow of gas, upon detecting an excessively high flow rate that can occur when the downstream gas piping is damaged and leaking gas. This device shall not be the type that is actuated by certain levels of earthquake acceleration, shaking, or vibration. The device shall automatically reopen and permit normal gas flow rates when the integrity of the downstream gas piping has been restored. ~~are not actuated by motion, but are activated by significant gas leaks or overpressure surges, which can occur when pipes rupture inside the structure. The design of the device shall provide a proven method to provide automatically for expedient and safe gas shutoff in an emergency. The design of the device shall provide a capability for ease of consumer or owner resetting in a safe manner.~~ The device shall be certified by the State Architect or the operational and functional design of the device shall

ATTACHMENT 2

meet or exceed the device certified by the Office of the State Architect. The determination of whether the operational and functional design of the device is at least equal to the device certified by the State Architect may be made by one of the following: the Independent Laboratory of the International Approval Services (IAS), Underwriter's Laboratory (UL), International Association of Plumbing and Mechanical Officials (IAPMO), or other recognized listing and testing agency.

~~(b)~~(c) "Residential Building" shall mean any single family dwelling, duplex, multifamily dwelling, apartment building, condominium building, townhouse building, lodging house, congregate residence, hotel, or motel.

(d) "Vulnerable Appliance Fuel Connector" shall mean an assembly of listed semi-rigid or flexible tubing and fittings to carry fuel between a fuel piping outlet and fuel-burning appliance where the connector is susceptible to being broken or damaged by falling objects or by the appliance shifting during an earthquake. This would include, but not be limited to, fuel connectors for clothes dryers, kitchen ranges, and tank-type water heaters regardless of whether or not the appliance is braced, anchored, strapped or fastened in place.

~~(d) "Seismic Gas Shut Off Device" shall mean a system consisting of a seismic sensing means and actuating means designed to actuate automatically a companion gas shut off means installed in a gas piping system in order to shut off the gas downstream of the location of the gas shutoff means in the event of a severe seismic disturbance. The system may consist of separable components or may incorporate all functions in a single body. The device shall be certified by the State Architect and the operational and functional design of the device shall meet or exceed the device certified by the Office of the State Architect. The determination of whether the operational and functional design of the device is at least equal to the device certified by the State Architect may be made by one of the following: the Independent Laboratory of the International Approval Services (IAS), Underwriter's Laboratory (UL), International Association of Plumbing and Mechanical Officials (IAPMO), or other recognized listing and testing agency.~~

~~(e) "Upstream of Gas Utility Meter" shall refer to all gas piping installed by the utility up to and including the meter and the utility's bypass tee at the connection to the customer owned piping.~~

~~(f) "Gas Shut Off Device," as used in this chapter, shall refer to either a Seismic Gas Shut Off Device or Excess Flow Gas Shut Off Device.~~

~~718.8.2043~~905 Scope.

~~(a) The following devices shall be installed at the following locations in the buildings specified in subsection (b):~~

~~(1) An approved seismic gas shut off device (motion sensitive) or an approved excess flow gas shut off device (non motion sensitive) shall be installed downstream of the gas utility meter at the beginning of each rigid gas piping system that serves any of the buildings specified in subsection (b); and(2)~~ An approved excess flow gas shut-off device (non-motion sensitive) shall be installed immediately upstream of any ~~at each connection of a gas appliance~~ vulnerable

appliance fuel connector ~~to a gas line~~ within the following buildings and structures:

~~(1)~~(a) In any new building construction (commercial, industrial or residential) containing fuel gas piping for which a building permit is first issued on or after the effective date of ~~the ordinance codified in~~ this chapter.~~;~~

~~(2)~~(b) In any existing residential building ~~that~~is altered or added to; ~~and~~

~~(A) The building has fuel gas piping supplying the existing building~~ for which a ~~or the addition to the building; and~~

~~(B) A~~ building permit ~~for the work~~ is first issued on or after the effective date of this ~~e ordinance codified in this~~ chapter for work involving fuel gas piping. When a building permit is issued to an individual condominium or apartment unit, an approved excess flow gas shut-off device shall be installed at each new or existing gas appliance which uses a vulnerable appliance fuel connector to connect it to the gas line only in the unit for which the building permit is issued.

~~(C) The value of the alteration or addition is either:~~

~~(i) More than five thousand dollars ($5,000.00) where fuel gas piping is involved in the alteration or addition. Alterations or additions to individual condominium or apartment unit shall require an approved gas shut-off device to be installed for all gas piping serving the building and a device at each connection of a gas appliance to a gas line in each individual unit that is being altered or added to; or~~

~~(ii)~~(c) In any existing residential building where the value of the alteration or addition is ~~M~~more than fifteen thousand dollars ($15,000)~~fifty thousand dollars ($50,000)~~ where fuel gas piping is not involved in the work for which a building permit is first issued on or after the effective date of this chapter~~alteration or addition~~. Alterations or additions to individual condominium or apartment units shall require an approved excess flow gas shut-off device to be installed ~~for all gas piping serving the building and a device~~ at each ~~connection of a~~ gas appliance which uses a vulnerable appliance fuel connector to connect it to a gas line in each individual unit that is being altered or added to.

~~(3)~~(d) In any existing commercial or industrial building that ~~is altered or added to; and~~

~~(A) The building~~ has fuel gas piping supplying the ~~existing~~ building for which a ~~or the addition to the building; and~~

~~(B) A~~ building permit ~~for the work~~ is first issued on or after the effective date of ~~the ordinance codified in~~ this chapter for work involving fuel gas piping. When ~~; and~~

~~(C) The value of the alteration or addition is either:~~

~~(i) More than five thousand dollars where fuel gas piping is involved in the alteration or addition. Alterations or additions to individual units or tenant spaces shall require an approved gas shut-off device to be installed for all gas piping serving the building and a device at each connection of a gas appliance to a gas line in each individual unit that is being altered or added to; or~~

a building permit is issued to an individual unit or tenant space, an approved excess flow gas shut-off device shall be installed at each new or existing

gas appliance which uses a vulnerable appliance fuel connector to connect it to the gas line only in the unit or tenant space for which the building permit is issued.

~~(ii)~~(e) In any existing commercial or industrial building where the value of the alteration or addition is more than fifteen thousand dollars ($15,000)~~More than fifty thousand dollars ($50,000)~~ where fuel gas piping is not involved in the work for which a building permit is first issued on or after the effective date of this chapter~~alteration or addition~~. Alterations or additions to individual units or tenant spaces shall require an approved excess flow gas shut-off device to be installed ~~for all gas piping serving the building and a device~~ at each ~~connection of a~~ gas appliance which uses a vulnerable appliance fuel connector to connect it to a gas line in each individual unit that is being altered or added to. (Ord. 555 § 1, 2006; Ord. 515 § 1, 2000).

~~718-8.2063~~-907 Exceptions.

~~(a) Gas shut-off devices are not required to be installed downstream of the gas utility meter where gas shut-off devices have been installed by the gas utility or a contractor authorized by the gas utility upstream of the gas utility meter and downstream of the meter service regulator and the installations are in accordance with the ordinance codified in this chapter and with the manufacturer's specifications.~~

~~(b)~~(a) Excess flow ~~G~~gas shut-off devices installed on a building before the effective date of ~~the ordinance codified in~~ this chapter are exempt from the requirements of this chapter~~section~~ provided they remain installed on the building or structure and are maintained for the life of the building or structure.~~(c) Gas shut-off devices installed on a gas distribution system owned or operated by a public utility are not subject to the requirements of this chapter (Health and Safety Code Section 19201 (b)).~~

~~(d)~~

(b) This chapter does not apply to mechanical or process equipment used in manufacturing.

~~(e) The ordinance codified in this chapter does not apply to gas shut-off devices installed within gas lines (Health and Safety Code Section 19204). (Ord. 555 § 1, 2006; Ord. 515 § 1, 2000)~~

~~718-8.2083~~-909 General Requirements.

Excess flow gas shut-off devices installed either in compliance with this ordinance or voluntarily, with a permit issued on or after the effective date of this chapter~~ordinance~~, shall comply with all of the following requirements:

(a) Be installed by a contractor licensed in the appropriate classification by the State of California and in accordance with the manufacturer's instructions.

~~(b) In the case of Seismic Gas Shut Off Devices (motion sensitive) only, such devices must be mounted rigidly to the exterior of the building or structure containing the fuel gas piping. This requirement need not apply if the Building Inspection Department determines that the seismic gas shutoff~~

~~device (motion sensitive) has been tested and listed for an alternate method of installation.~~

~~(c)~~(b) ~~In the case of Seismic Gas Shut Off Devices (motion sensitive) only, be certified by the State Architect and be listed by an approved listing and testing agency such as IAS, IAMPO, UL or the Office of the State Architect. In the case of Excess Flow Gas Shut Off Devices only, b~~Be certified by the State Architect or be listed by an approved listing and testing agency such as IAS, IAMPO, UL or the Office of the State Architect.

~~(d) Have a thirty (30) year warranty which warrants that the valve or device is free from defects and will continue to operate properly for thirty (30) years from the date of installation.~~

~~(e)~~(c) Where excess flow gas shut-off devices are installed voluntarily or as required by this chapter~~section~~, they shall be maintained for the life of the building or structure or be replaced with a valve or device complying with the requirements of this chapter~~section~~. (Ord. 515 § 1, 2000)

~~718-8.2103~~-911 _____List of Approved Valves and Devices.

The Building Inspection Department shall maintain a list of all ~~Seismic Gas Shut-Off Devices (motion sensitive) and~~ excess flow gas shut-off devices (non-motion sensitive) which meet or exceed the requirements of devices certified by the Office of the State Architect for installation in the State of California and which comply with the standards and criteria set forth in Health and Safety Code section 19180 *et seq*.~~, including quality and design regulation for earthquake actuated automatic gas shutoff systems (see 24 Cal. Code Regs. Ch. 12-16-1).~~ (Ord. 515 § 1, 2000)

~~718-8.2123~~-913 _____ Enforcing Agency.

The Contra Costa County Building Inspection Department shall administer and enforce the provisions of this chapter~~ordinance~~. (Ord. 515 § 1, 2000)

Chronology of Chapter 3-9, Gas Shut-Off Devices, LMC

March 21, 2000	Contra Costa County Board of Supervisors adopts Ordinance No. 2000-11 requiring the installation at gas utility meters of excess flow gas shut-off devices (non-motion sensitive) or gas shut-off devices that are activated by motion.
July 10, 2000	City Council adopts Ordinance No. 515, adopting by reference portions of the Ordinance Code of Contra Costa County requiring the installation at gas utility meters of excess flow gas shut-off devices (non-motion sensitive) or gas shut-off devices that are activated by motion.
July 13, 2004	Board of Supervisors adopts Ordinance No. 2004-27 requiring gas shut-off devices at gas appliances in certain new construction and remodeling of structures. Ordinance No. 2004-27 amends the previous ordinance to require installation of gas shut-off valves at the natural gas appliance as well as at the gas utility meter.
April 10, 2006	City Council adopts Ordinance No. 555 adopting County Ordinance No. 2004-27 of the County of Contra Costa. Ordinances 515 and 555 are added to the Lafayette Municipal as Chapter 3-9, Gas Shut-Off Devices.
October 3, 2006	Board of Supervisors amends current gas shut-off valve regulations by adopting Ordinance No. 2006-44 requiring the installation of gas shut-off devices in existing residential, commercial, and industrial buildings prior to the sale of those buildings or when additions or alterations valued at more than $15,000 are made.
April 9, 2007	Lafayette Ordinance No. 564 to amend Chapter 3-9 and adopt County Ordinance No. 2006-44 is introduced and continued to April 23, 2007 for a public hearing and adoption.
April 23, 2007	The City Council requests that Ordinance No. 564 be referred to the Lafayette Emergency Preparedness Commission (EPC) for review and comment. The City Council requests that the EPC consider the following points: • Do regulations requiring installation of gas shut-off devices serve the public good and promote public health and safety? • If gas shut-off devices are required, are they needed at both the gas utility meter and each gas appliance? • Are the thresholds (building permit valuation) for requiring installation appropriate for the City of Lafayette? • Should point of sale be a threshold for requiring installation of gas shut-off devices?
July 20, 2007	EPC completes its review of County Ordinance 2006-44, City Ordinance 564, and Chapter 3-9, LMC. They conclude that based on maximum public safety: • Seismically activated valves should not be installed at all. • An excess flow valve is only needed at each gas-fueled appliance. Excess flow valves are not likely to be of great benefit when installed just downstream of the gas meter but will not do harm. Because they operate on excess flow, a tripped valve is a positive indication that a rupture has occurred.

- Excess flow valves at the appliance junctions are highly beneficial. Repair or replacement of the broken tubing may be done by the resident, and the appliance restored to normal without needing the services of PG&E.
- The point of sale requirement as recommended by the County should not be adopted.
- Adopt changing the building permit valuation threshold from $50,000 to $15,000 for additions and alternations as recommended by the County.

October 22, 2007 — Lafayette Ordinance No. 564 is re-introduced. Ordinance No. 564 is revised to reflect the recommendations of the EPC of July 20, 2007. The City Council approves the following motions.

ACTION: It was M/S/C (Tatzin/Anderson) to introduce Ordinance No. 564 revising Chapter 3-9, Gas Shut-Off Devices of the Lafayette Municipal Code, and directing the City Attorney to make necessary modifications of Section 3-905 (a)(1) to replace the word "shall" with "may" with the option of making (a)(2) mandatory. Vote: 4-0-1 (Ayes: Federighi, Andersson, Tatzin, Anderson; Noes: None; Absent: Anduri).

ACTION: It was M/S/C (Tatzin/Anderson) that staff notify the Board of Realtors of the ordinance's adoption and direct them to begin the educational program as agreed upon, continue the matter to November 13, 2007, and from on year's date of adoption of the education program, for them to report back to the City Council regarding the number of installations voluntarily installed due to the educational outreach efforts; and at that time for the Council to determine consideration of modification of the ordinance. Vote: 4-0-1 (Ayes: Federighi, Andersson, Tatzin, Anderson; Noes: None; Absent: Anduri).

November 10, 2007 — Planning staff receives correspondence from the Board of Realtors expressing concerns about the Council's direction that they begin an education campaign. They can offer monetary support for the costs of brochures, news ads, etc. and can contact contractors but they do not have the jurisdiction to contact residents or convey information without the participation and approval of the City.

November 13, 2007 — City Council conducts a public hearing on Ordinance No. 564 which was revised per the Council's direction of October 22, 2007. At the meeting, a member of the public raises an objection to the installation of gas shut-off devices as currently required by Chapter 3-9, LMC. Due to this comment and because an educational campaign by the Board of Realtors is now in question, the Council directs the EPC to review and consider these two issues and return with their comments and recommendations at a future meeting.

February 13, 2008 — The EPC completes their review as requested by the Council and provides their comments to Planning staff.

February 25, 2008 — Planning staff requests that Ordinance No. 564 be withdrawn to allow for new public notice.

March 10, 2008 — Ordinance No. 564 is re-introduced. Members of the EPC request that additional changes be made to Ordinance No. 564. The public hearing is closed and staff is directed to work with the EPC on their requested revisions.

FINDINGS IN SUPPORT OF NEED FOR STRICTER CONSTRUCTION STANDARDS DUE TO LOCAL CONDITIONS

The California Building Standards Commission has adopted and published the 2007 Building Standards Code, which is comprised of the 2007 California Building, Mechanical, Plumbing and Electrical Codes. These statewide codes become effective January 1, 2008. Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes and establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological or topographical conditions.

Ordinance No. 564 amends Chapter 3-9, Gas Shut-Off Devices of the Lafayette Municipal Code which requires installation of excess flow gas shut-off devices in existing and new residential, commercial and industrial buildings. Pursuant to Health and Safety Code section 17958.7, the City Council of the City of Lafayette finds that the more restrictive standards contained in Ordinance No. 564 are reasonably necessary because of the local climatic, geological, and topographic conditions that are described below.

A. Climatic

1. Precipitation and Relative Humidity

(a) Conditions

Precipitation ranges from 15 to 24 inches per year with an average of approximately 20 inches per year. Ninety-six (96) percent falls during the months of October through April and four (4) percent from May through September. This is a dry period of at least five (5) months each year. Additionally, the area is subject to occasional drought. Relative humidity remains in the middle range most of the time. It ranges from forty-five (45) to sixty-five (65) percent during spring, summer, fall, and from sixty (60) to ninety (90) percent in the winter. It occasionally falls as low as fifteen (15) percent.

(b) Impact

Locally experienced dry periods cause extreme dryness of untreated wood shakes and shingles on buildings and non-irrigated grass, brush and weeds, which are often near buildings with wood roofs and sidings. Such dryness causes these materials to ignite very readily and burn rapidly and intensely. Gas fires due to gas line ruptures can also spark and engulf a single family residence during these dry periods.

Because of dryness, a rapidly burning gas fire or exterior building fire can quickly transfer to other buildings by means of radiation or flying brands, sparks or embers. A small fire can rapidly grow to a magnitude beyond

the control capabilities of the Fire District resulting in an excessive fire loss.

2. Temperature

(a) Conditions

Temperatures have been recorded as high as 114° F. Average summer highs are in the 75° - 90° range.

(b) Impact

High temperatures cause rapid fatigue and heat exhaustion of firefighters, thereby reducing their effectiveness and ability to control large building, wildland fires, and fires caused by gas line ruptures.

Another impact from high temperatures is that combustible building material and non-irrigated weeds, grass and brush are preheated, thus causing these materials to ignite more readily and burn more rapidly and intensely. Additionally, the resultant higher temperature of the atmosphere surrounding the materials reduces the effectiveness of the water being applied to the burning materials. This requires that more water be applied, which in turn requires more fire resources in order to control a fire on a hot day. High temperatures directly contribute to the rapid growth of fires to an intensity and magnitude beyond the control capabilities of the Fire District.

3. Winds

(a) Conditions

Prevailing winds in Lafayette are from the north or northwest in the afternoons. However, winds are experienced from virtually every direction at one time or another. Velocities can reach fourteen (14) mph to twenty-three (23) mph ranges, gusting to twenty-five (25) to thirty-five (35) mph. Forty (40) mph winds are experienced occasionally and winds up to fifty-five (55) mph have been registered locally. During the winter half of the year, strong, dry, gusty winds from the north move through the area for several days, creating extremely dry conditions.

(b) Impact

Winds such as those experienced locally can and do exacerbate fires, both interior and exterior, to burn and spread rapidly. Fires involving non-irrigated weeds, grass, brush, and fires caused by gas line ruptures can grow to a magnitude and be fanned to an intensity beyond the control capabilities of the Fire District very quickly even by relatively moderate

winds. When such fires are not controlled, they can extend to nearby buildings, particularly those with untreated wood shakes or shingles.

Winds of the type experienced locally also reduce the effectiveness of exterior water streams used by the Fire District on fires involving large interior areas of buildings, fires which have vented through windows and roofs due to inadequate built-in fire protection and fires involving wood shake and shingle building exteriors. Local winds will continue to be a definite factor toward causing major fire losses to buildings not provided with fire resistive roof and siding materials and buildings with inadequately separated interior areas, or lacking automatic fire protection systems, or lacking proper gas shut-off devices to shut off gas when pipes are ruptured, or lacking proper electrical systems. National statistics frequently cite wind conditions, such as those experienced locally, as a major factor where conflagrations have occurred.

4. Summary

These local climatic conditions affect the acceleration, intensity, and size of fire in Lafayette. Time of little or no rainfall, of low humidity, and high temperatures create extremely hazardous conditions, particularly as they relate to wood shake and shingle roof fires and conflagrations. The winds experienced in Lafayette can have a tremendous impact upon structure fires. During wood shake and shingle roof fires, or exposure fires, or gas fires, winds can carry sparks and burning brands to other structures, thus spreading the fire and causing conflagrations. In building fires, winds can literally force fires back into the building and can create a blow torch effect, in addition to preventing "natural" ventilation and cross-ventilation efforts.

B. Geological and Topographic

1. Seismicity

(a) Conditions

The city of Lafayette is located in Contra Costa County which is located in Seismic Risk Zone 4, the worst earthquake area in the United States. Buildings and other structures in Zone 4 can experience major seismic damage. Lafayette is in close proximity to numerous earthquake faults including the San Andreas Fault, Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Contra Costa County in 1958, and a 5.4 earthquake with its epicenter also in Contra Costa County occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area.

A study released in 1990 by the United States Geological Survey says that there is a 67% chance of another earthquake the size of Loma Prieta during the next 30 years, and that the quake could strike at any time, including today. Scientists, therefore, believe that an earthquake of a magnitude 7 or larger is now twice as likely to happen as to not happen.

Interstates 680 and 24 run nearby or adjacent to Lafayette. An overpass or undercrossing collapse would significantly alter the response route and time for responding emergency equipment. This is due to limited crossings of the interstate and that in some areas there is only one surface street, which runs parallel to the interstate, which would be congested during a significant emergency.

Earthquakes of the magnitude experienced locally can cause major damage to electrical transmission facilities and to gas and electrical lines in buildings, which in turn start fires. The occurrence of multiple fires will quickly deplete existing fire department resources; thereby reducing and/or delaying their response to any given fire.

One cause of post-earthquake fires is overturned gas appliances such as dryers, unstrapped water heaters, furnaces, and gas ranges. Requiring excess flow gas shut-off valves on fuel burning appliances would reduce the risk of explosion and fire, thereby reducing property damage and injury to humans.

(b) Impact

A major earthquake could severely restrict the response of the Contra Costa County Fire District and their capability to control fires involving buildings of wood frame construction, with ordinary roofing materials and flammable exteriors, or with large interior areas not provided with automatic smoke and fire control systems. Also, when buildings not equipped with earthquake structural support move off their foundations, gas pipes may rupture. Fires develop from line ruptures and spread from house to house, causing an extreme demand for fire protection resources. The proximity of Lafayette to fault traces, necessitates adopting stricter structural construction standards.

2. Soils

(a) Conditions

The area is replete with various soils, which are unstable, clay loam and alluvial fans being predominant. These soil conditions are moderately to severely prone to swelling and shrinking, are plastic, and tend to liquefy.

(b) Impact

Throughout Lafayette, the topography and development growth has created a network of older, narrow roads. These roads vary from gravel to asphalt surface and vary in percent of slope, many exceeding twenty (20) percent. Several of these roads extend up through the winding passageways in the hills providing access to remote, affluent housing subdivisions. The majority of these roads are private with no established maintenance program. During inclement weather, these roads are subject to rock and mudslides, as well as down trees, obstructing all vehicle traffic. It is anticipated that during an earthquake, several of these roads would be impassable so as to prevent fire protection resources from reaching fires cause by gas line ruptures or other sources.

3. Topographic

(a) Conditions

Lafayette is built primarily on hillside lands with slopes ranging up to 30 percent. The arrangement and location of natural and manmade surface features, including hills, creeks, canals, freeways, housing tracts, commercial development, fire stations, streets and roads, combine to limit feasible response routes for Fire District resources. .

(b) Impact

Highly combustible dry grass, weeds, and brush are common in the hilly and open space areas adjacent to built-up locations six (6) to eight (8) months of each year. Many of these areas frequently experience wildland fires, which threaten nearby buildings, particularly those with wood roofs, or sidings. This condition can be found throughout Lafayette. Earthquake-induced fires due to gas line ruptures can ignite grasslands and stress fire district resources.

4. Summary

The above local geological and topographical conditions increase the magnitude, exposure, accessibility problems, and fire hazards presented to fire protection resources. Fire following an earthquake has the potential of causing greater loss of life and damage than the earthquake itself. Most earthquake fires are created by natural gas developed from gas line ruptures. Hazardous materials, particularly toxic gases, could pose the greatest threat to the largest number, should a significant seismic event occur. Public safety resources would have to be prioritized to mitigate the greatest threat, and may likely be unavailable for smaller single dwellings that were caused by broken gas lines.

Other variables may tend to intensify the situation:

1. The extent of damage to the water system
2. The extent of isolation due to bridge and/or freeway overpass collapse.
3. The extent of roadway damage and/or amount of debris blocking the roadways.
4. Climatic condition (hot, dry weather with high winds).
5. Time of day will influence the amount of traffic on roadways and could intensify the risk to life during normal business hours.
6. The availability of timely mutual aid or military assistance.
7. The large portion of dwellings with wood shake or shingle coverings (both on the roof diaphragm and sides of the dwellings) could result in conflagrations.
8. The large number of dwellings that slip off their foundations and rupture gas lines and electrical systems resulting in further conflagrations.

Automatic Gas Shut-Off Devices to prevent Gas Fires Caused by Pipeline Ruptures and Breaks

Excess Flow Gas Shut-Off Devices are valves or devices that automatically close a valve to stop the flow of gas, upon detecting an excessively high flow rate that can occur when the downstream gas piping is damaged and leaking gas. This device shall not be the type that is actuated by certain levels of earthquake acceleration, shaking, or vibration. The device shall automatically reopen and permit normal gas flow rates when the integrity of the downstream gas piping has been restored. The device shall be certified by the State Architect or the operational and functional design of the device shall meet or exceed the device certified by the Office of the State Architect. The determination of whether the operational and functional design of the device is at least equal to the device certified by the State Architect may be made by one of the following: the Independent Laboratory of the International Approval Services (IAS), Underwriter's Laboratory (UL), International Association of Plumbing and Mechanical Officials (IAPMO), or other recognized listing and testing agency.

Need for Maximum Protection

Since there are many devices having different means of preventing gas escape which are on the private market, all of which can potentially protect buildings from fires and explosions due to gas line ruptures, it is important to provide as many options to the public for their use and protection. Devices which prevent gas escape from gas line breaks and ruptures should be approved by public or private non-profit agencies regarded as credible in their fields, as the above.

Fire Protection Resources Preserved.

By requiring excess flow gas shut-off devices in all new building construction and in certain remodeled buildings, the likelihood of fire and explosion will be reduced, thus not taxing resources of the Fire District. In addition, there are several studies that have been conducted by public and private agencies which recognize that the use of excess flow gas shut-off devices will reduce the amount of damage to property and loss of lives in earthquakes.